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EXAMINER
BILGRAMI, ASGHAR H

ART UNIT	PAPER NUMBER
2443	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/895,235	RUSSELL, LANCE W.	
	Examiner	Art Unit	
	ASGHAR BILGRAMI	2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-25 and 27-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-9,11-25,27 and 30* is/are rejected.

7)☒ Claim(s) *28 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to Applicant's Amendment filed 5/04/09, claims 1-8, 19-25 and 27-30, have been amended, claims 1-9, 11-25, and 27-30 remain pending.

2. The granted decision mailed on 5/06/09 for petition filed on November 18, 2008, requesting to set aside non final office action mailed September 18, 2008, and to reinstate the Appeal Brief that was pending at the time the pending non final office action was mailed, is acknowledged. However, Applicant filing of amendment filed 05/04/09 in response to office action mailed 02/05/09 renders this decision ***dismissed as moot***.

3. Claims 1-8, 19, 21-25, and 27-30 rejected under 35 U.S.C. § 101 is obviated by amendment to the claims filed 5/04/09, thus this rejection is hereby withdrawn.

4. Applicant's arguments presented filed 5/04/09 regarding the objection to claim 11 are persuasive, thus objection is hereby withdrawn.

Response to Arguments

A. Regarding the rejection of claims 1-4, 6-9, 11-14, 16-25, 27 and 30 under 35 U.S.C. §102(e) over Turek it is argued that Turek neither expressly nor inherently discloses each and every element of the invention defined by the claim.

Specifically, with respect to claim 1 as amended, it is argued that Turek does not disclose *a network management module that causes the processor to launch migratory recovery modules into the network to monitor status of each of the network nodes*, as now recited.

Because according to applicant's interpretation:

(i) the mobile software agents are deployed by the dispatch mechanism (15) in the management server (14) *only in response to* either a report of a "network fault", alarm or other such trigger" (col. 7, lines 3-4) or a "request for maintenance in some non-specified area of the network" (col. 7, line 7) and the dispatched agents cease migrating after reaching their respective target nodes. Applicant further adds that diagnosing and correcting network problems does not constitute monitoring the status of each of nodes in a network.

(ii) The dispatch mechanism 15 deploys a selected one of the software agents to the particular location of a fault or a particular area of a network where the fault is likely to have occurred (see, e.g., col. 7, lines 1-57). If the initial given node location does not contain the specific fault for which the software agent was deployed, the software agent identifies "a subset of nodes (associated with the given node) that remain candidates for

locating the error" (col. 8, lines 31-32). Once the particular fault is located and diagnosed, the software agent attempts to fix the problem (see col. 9, lines 21-22).

(iii) Turek does not teach or suggest anything that that would have led one skilled in the art at the time the invention was made to believe that the software agent migrates to any other nodes after attempting to "effect repairs" and reporting back with the diagnosis. To the contrary, in accordance with Turek' s teachings, each of the mobile software agents is deployed to diagnose and, if possible correct, only one particular network fault (see, e.g., col. 5, lines 43-60)

Therefore, there is no apparent need for any of Turek's software agents to migrate from the node that contains the particular network fault that the software agent was deployed to diagnose and correct.

(iv) One skilled in the art at the time the invention was made would not have had any basis for believing that Turek' s system launches migratory recovery modules into a network to monitor status of each of the network nodes, as recited in claim 1. In accordance with its ordinary and accustomed meaning, the verb "monitor' means "to watch, keep track of, or check usually for a special purpose" (Merriam-Webster's Collegiate Dictionary, Tenth Edition (1995).

(v) The software agents in Turek's are designed to recursively narrow the search for the particular network nodes for which they were respectively deployed and, after arriving at the target network nodes, the software agents attempt to effect repairs and report back diagnoses; the dispatched agents cease migrating after reaching their respective target nodes. That is, the software agents are not configured to determine

the status of each of the network nodes, as recited in claim 1. Moreover, Turek only teaches that each of the software agents is configured to determine whether a particular event originated from a node (see col. 2, lines 49-53). Turek does not teach that these agents are configured to determine the status of their respective target nodes. Consequently, the dispatch mechanism (15) is not configured to provide periodic monitoring of the status of each of the network nodes, as recited in claim 1.

In response to the above mentioned argument, applicant's interpretation of the applied reference has been fully considered.

Regarding point (i) the deployment *only in response to* either a report or a request for maintenance and to cease migrating after reaching their respective target nodes are features not commensurate with the scope of the claim, because the claim limitation ***does not*** recite *...to launch migratory recovery modules into the network to monitor status of each of the network nodes not in response to a report or request nor migrating after reaching a respective target node..*

Regarding point (ii) in accordance with applicant's definition of the claimed term "monitor", which means to watch, keep track of, or check usually for a special purpose. It is noted that in view of this definition, the test to determine whether a fault originated at a given node is "monitoring" as defined by applicant. Turek disclosed that "migration is effected by targeting the software agent to a given node and then having the agents find its way to the actual fault through a recursive migration process,...when the agent arrives at a given node, as step (68) a test is performed to determine whether a fault

originated from the given node (column 8, lines 20-32). Thus, effectively, Turek teaches *launching migratory recovery modules (software agent) into the network to monitor (e.g. check usually for a special purposes) status (e.g. failure) of each of the network nodes.*

Regarding point (iii) that Turek's software agent would not migrates to any other nodes after attempting to "effect repairs" and reporting back with the diagnosis and where in accordance with Turek's teachings, each of the mobile software agents is deployed to diagnose and, if possible correct, only one particular network fault. Therefore, there is no apparent need for any of Turek's software agents to migrate from the node that contains the particular network fault that the software agent was deployed to diagnose and correct. It is noted that migrating to any other node after attempting to effect repairs…is not commensurate with the scope of claim 1. Turek does not teach deploying an agent to diagnose and if possible correct only one particular network fault. One objective of the Turek's patent is to collect information about conditions as mobile software agents are dispatched and migrated throughout a large computer network to correct network fault**s**, wherein such information is then useful in diagnosing new faults (column 2, lines 22-26, see cycle routine of Fig. 6). Thus, applicant's interpretation that the agent correct only one particular network fault is inconsistent with the reference's disclosure.

Regarding point (iv) contrary to applicant's interpretation of Turek that one would not have had any basis for believing that Turek' s system launches migratory recovery modules into a network to monitor status of each of the network node, Turek discloses that as the software agent is migrating toward a subset of nodes information collected

by the software agent is returned to the dispatch mechanism and stored in the database for future use (column 8, lines 44-47).The system management framework supports network usage monitoring, printer or other configuration management, and the like (column 4, lines 22-29). Thus, in view of the teachings of Turek, applicant's interpretation is not persuasive.

Regarding point (v) wherein the software agents of Turek are configured to determine whether a particular event originated from a node, thus not configured to determine the status of their respective target nodes. According to the invention's disclosure, the status of the node includes information relating to any failed node process [par 030]. Thus, given the broadest reasonable interpretation inlight of the specification, determining the status of a node does not exclude determining whether there is a failure on the node. Turek teach where the software agent arrives at a given node, and performs a test to the determining whether a fault occurred on the given node (column 8, lines 21-27), thereby determining the status of the node.

B. Turek also does not disclose a network management module that "monitors transmissions that are received from the recovery modules to provide periodic monitoring of the status of each of the network nodes", as claimed

According to applicant's interpretation of the reference cited portion col.7, lines 58-67 - col. 8, lines 1-9, Turek does not provide any details about which component performs the test that is "done" at step 50 of Fig. 4, nor does Turek reveal anything

about the type of information that is input into the test nor the nature of the outcome of the test that indicates whether or not the software agent has arranged at the fault location. Without such details there is no basis on which one skilled in the art reasonably could conclude that Turek's dispatch mechanism monitors transmissions that are received from the software agent to provide periodic monitoring of the status of the network nodes. For example, one reasonably could imagine an embodiment in which the software agent transmits to the display agent a message that indicates whether or not the software agent has arrived at the targeted fault location. Such a message reveals the status of the software agent, not the node.

In response to the above mentioned argument applicant's interpretation of the cited portion has been considered. However, Turek's discussion of the problem to solve is directed to management framework that manages computer resources on a large geographically dispersed network environment manages large local storages and spawn may simultaneous process to handle request from users, including maintenance problems the odds of a ***machine failure or other fault***. According to Turek the problem of keeping a distributed management framework connected is a continuous job. Any number of everyday actions can server a connection or otherwise contribute to a fault condition (column 1, lines 11-48). Turek discloses a method of diagnosing a ***fault*** in such an environment by deploying a management infrastructure throughout the computer network...the selected software agent is then deployed into the computer network to diagnosis the ***fault***. If the location of the ***fault*** is indeterminate, the software agent migrates to the location by gathering information about the ***fault*** as it traverses

the network (abstract). The test performed is to determine whether an “event”, e.g. ***fault*** has occurred (column 7, lines 2-6, 17-18).

Applicant’s arguments that Turek does not reveal anything about the type of information that is input into the test nor the nature of the outcome of the test that indicates whether or not the software agent has arranged at the fault location, are not persuasive.

Applicant further argues that Turek does not teach "the network management module monitors transmissions that are received from the recovery modules to provide periodic monitoring of the status of each of the network nodes", as claimed because the dispatched agents cease migrating after reaching their respective target nodes. Thus, a particular node can be expected to be visited only once by the software agent that is deployed by the dispatch mechanism. Accordingly, such a deployment of software agents could not possibly provide periodic monitoring of the status of each of the network nodes.

In response to the above mentioned argument, applicant interpretation of Turek is noted.

However, Turek’s objective is to automate the diagnosis of network events in a large, distributed computer network (column 2, lines 8-11). Particularly, given the maintenance problems discussed by Turek in existing distributed network system and the odds of a ***machine failure or other fault, where*** keeping a distributed management framework connect is a continuous job and any number of everyday actions can server a

connection or otherwise contribute to a fault condition (column 1, lines 11-48) and the event history information (column 7, lines 30-48).

One skilled in the art could reasonably conclude that Turek's dispatch mechanism monitors transmissions that are received from the software agent to provide periodic monitoring of the status of the network nodes. For example, one reasonably could imagine an embodiment in which the software agent transmits information about the performed test to determine whether a "event", e.g. ***fault*** has occurred, such a message revealing the status of the node continuously on a daily bases or at shorter intervals of time dynamically based on the gathered information about the ***fault*** as it traverses the network, and thus provide a clue regarding how new events should be addressed. Arguments stating that because the software agents cease migrating after reaching their respective target nodes, one can expect a node to be visited only once by the software agents and that such a deployment of software agents could not possibly provide periodic monitoring of the status of each of the network nodes are not persuasive.

C. Regarding claims 2-4, 6-9, 21-25, and 30, each of these incorporates the features of independent claim 1 and therefore are not patentable over Turek for at least the same reasons explained above.

D. Regarding claim 11, it is argued that Turek's software agents do not perform any of elements (c) after initiating the recovery process, migrating from the current network node to a successive one of the network nodes; and (d) repeating (a), (b), and (c) with the current network node corresponding to the successive network node for each of the nodes in the network, as recited on claim 11.

In accordance with Turek's teachings, the mobile software agents do not migrate from a current network node to a successive one of the network nodes after initiating a recovery process on the current network node. Because, after initiating a recovery process, Turek's mobile software agents merely report the problem and the corrective action that was taken to the dispatch mechanism 15 (see col. 8, lines 6-9; FIG. 4). Therefore, there is no apparent need for any of Turek' s software agents to migrate from the node that contains the particular network fault that the software agent was deployed to diagnose and correct. Thus, Turek does not disclose either element (c) or element (d) of claim 11.

In response to the above mentioned argument Turek clearly discloses that software agents migrate throughout the network {I.E from one network node to another} to diagnose and correct the network faults (col.5, lines 32-60).

E. Regarding claims 12-14 and 16-19, each incorporates the features of independent claim 11 and therefore is not patentable over Turek for at least the same reasons explained above.

F. Regarding claim 20, as amended, claim 20 is unpatentable over Turek in view of Sreenivasan for at least the same reasons explained above in connection with independent claim 11.

G. Rejection of claims 5 and 15 under 35 U.S.C. § 1030) over Turek in view of Sreenivasan. Claim 5 recites that "the recovery module causes the second network node to determine a status of the second network node in accordance with a heartbeat messaging protocol."

Applicant argues that applied reference does not teach this claim limitation as recited, because, given the limited information provided by heartbeat messages, they cannot be used to "diagnose and, if possible, correct a network fault" as required of the mobile software agents (see Turek, col. 5, lines 41-42). Instead, the mobile software agents perform these tasks by performing tests at the nodes to which the software agents were deployed by the management server 14 (see col. 7, line 58 - col. 8, line 9). Thus, Turek fails to disclose or suggest software agents that determine the "status" of a network node, where the "status" is determinable in accordance with a heartbeat messaging protocol.

Sreenivasan according to applicant does not disclose anything about recovery modules of the type disclosed in Turek, much less anything about such modules that "cause the second network node to determine a status of the second network node in accordance with a heartbeat messaging protocol." Because (i) "software running on

each sewer 12 use private network 18 to exchange heartbeat and other control messages." (ii) the CMD processes running on the servers of the Sreenivasan's cluster constitute "recovery modules." because they are not mobile and do not determine a status of **itself** in accordance with a heartbeat messaging protocol; instead, the CMD processes transmit heartbeat messages between different nodes.

In response to the above mentioned argument that the recovery module in Srinivasan is not mobile and do not determine a status of itself is irrelevant because the claim limitation is directed towards a software agent determining the status of the node rather than the status of itself. Examiner notes and has also indicated in the rejection that Sreenivasan was introduced because its “software agent” showed the “heartbeat messaging protocol” functionality while Turek did not explicitly disclose that its “software agent” has that functionality. Sreenivasan also discloses a software agent (Daemon) that is present on the network nodes and provides the status information “I’m alive message” from nodes (paragraphs.78, 111 & 112). Therefore that it is proper to combine Turek and Sreenivasan to anticipate applicant’s claimed invention.

H. Applicant argues that the rationale given in support of the combination of Turek and Sreenivasan does not establish a prima facie case of obviousness.

The rationale given by the Examiner in support of his proposed combination of Turek and Sreenivasan does not establish a prima facie case of obviousness because the incorporation of a heartbeat messaging protocol into the management server 14 to determine the status of a network node as disclosed by Sreenivasan (i.e., by exchanging heartbeat messages between software running on each server) would not result in the invention defined in claim 5, where "the recovery module is configured to determine the status of a network node in accordance with a heartbeat messaging protocol."

In response to the above mentioned argument examiner notes and also indicated in the rejection that Sreenivasan was introduced because its “software agent” showed the “heartbeat messaging protocol” functionality while Turek did not explicitly disclose that its “software agent” has that functionality. Sreenivasan also discloses a software agent (Daemon) that is present on the network nodes and provides the status information “I’m alive message” from nodes (paragraphs.78, 111 & 112).

I. Applicant argues one skilled in the art at the time the invention was made would not have had any apparent reason to modify the teachings of Turek in the manner proposed by the Examiner.

In accordance with Turek's teachings, the software agents are deployed only after an event, such as a network fault, has been determined by the management server 14. Therefore, there is no need for the software agents to use a heartbeat messaging protocol to determine whether such an event originated from a particular

node. Instead, each software agent need only be tailored to specifically identify the particular network fault that triggered the deployment of the software agent by the management server 14. As explained above, such information is not determinable in accordance with a heartbeat protocol due to the limited nature of the information conveyed by the heartbeat messages (i.e., "I'm here, are you here?").

For at least this reason, one skilled in the art at the time the invention was made would not have had any apparent reason to modify the teachings of Turek in the manner proposed by the Examiner.

In addition, even assuming only for the purposes of argument that Turek's migratory agents could be modified to run the CMD processes, one skilled in the art would not have had a reasonable basis for believing that the CMD framework would work when running on migratory software agents of the type described in Turek. In particular, the CMD framework is designed to operate with each of the CMDs running on a single respective server of a cluster.

In response to the above mentioned argument examiner notes that Turek does disclose software agents that monitor network conditions (col.2, lines 22-26) and report errors (col.5, lines 32-35) however Turek did not explicitly disclose that network node status information being conveyed utilizes “heartbeat messaging protocol”. Therefore prior art Sreenivasan was introduced which also disclosed a software agent resident on the node that provided the status of the node via “heartbeat messaging protocol”.

J. Claim 15 depends from independent claim 11 and recites that "the status of a network node is determined in accordance with a heartbeat messaging protocol."

Sreenivasan does not make-up for the failure of Turek to disclose or suggest the elements of independent claim 11 discussed above. Indeed, Sreenivasan does not disclose anything about recovery modules of the type disclosed in Turek, much less anything about such modules that are "configured to determine the status of a network node in accordance with a heartbeat messaging protocol." Moreover, one skilled in the art at the time the invention was made would not have had any apparent reason to combine Turek and Sreenivasan in the manner proposed by the Examiner for the reasons explained above in connection with independent claim 5.

In response to the above mentioned argument Examiner notes that this rejection is based on a combination two prior arts rejected under 35 U.S.C 103 and has cited pertinent excerpts from Turek to address this functionality. Examiner notes and has also indicated in the rejection that Sreenivasan was introduced because its “software agent” showed the “heartbeat messaging protocol” functionality while Turek did not explicitly disclose that its “software agent” has that functionality. Sreenivasan also discloses a software agent (Daemon) that is present on the network nodes and provides the status information “I’m alive message” from nodes (paragraphs.78, 111 & 112). Therefore that it is proper to combine Turek and Sreenivasan to anticipate applicant’s claimed invention.

L. Regarding claim 28, claim recites that the network management module causes the processor to statistically identify target ones of the network nodes that are needed to achieve a specified confidence level of network monitoring reliability, and the network management module causes the processor to launch the recovery modules into the network by transmitting respective ones of the recovery modules to the identified target network nodes.

In cited disclosure, Douik merely compares observed events to stored performance data and statistics in order to determine a suspected fault to explain the observed events and symptoms. Douik does not even hint that target nodes are identified statistically to achieve a specified confidence level of network monitoring reliability. Moreover, Douik does not teach or suggest anything about migratory recovery modules and launching the recovery modules into the network by transmitting respective ones of the recovery modules to the identified target network nodes.

Examiner has objected to claim 28 and indicated it to be allowable subject matter once it is incorporated into the independent claims.

M. Regarding claim 29, claim recites: determining a number of the recovery modules needed to achieve a specified network monitoring service level; statistically identifying

target ones of the network nodes to achieve a specified confidence level of network monitoring reliability, and transmitting the determined number of the recovery modules to the identified target network nodes.

Claim 29 recites features that essentially track the pertinent features of claim 28 discussed above. Therefore, claim 29 is patentable over Turek in view of Douik for at least the same reasons explained above in connection with claim 28.

Examiner has objected to claim 28 and indicated it to be allowable subject matter once it is incorporated into the independent claims.

Specification

5. The disclosure is objected to because of the following informalities: The disclosure fails to disclose the term "computer-readable medium" as being claimed.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 1 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Lines 8-14 of claim 1 states "wherein each of the recovery modules is configured to: cause any given one of the network nodes to migrate the network node from the given network node to another one of the network nodes; cause any given one of the network nodes to determine a respective status of the given network node; and cause any given one of the network nodes to initiate a recovery process on the given network node in response to a determination that the given network node has one or more failed node processes". This limitation is talking about migrating a node to another node which is not consistent with applicant's disclosure. Appropriate correction is required.

8. Claims 2-4, 6-9, 21-25, 27 & 28 are also rejected under 35 U.S.C. 112, first paragraph by virtue of their dependence on clam 1.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Lines 8-14 of claim 1 states "wherein each of the recovery modules is configured to: cause any given one of the network nodes to migrate the network node from the

given network node to another one of the network nodes; cause any given one of the network nodes to determine a respective status of the given network node; and cause any given one of the network nodes to initiate a recovery process on the given network node in response to a determination that the given network node has one or more failed node processes". This limitation is talking about migrating a node to another node which is indefinite language and is also not consistent with the disclosure. Appropriate correction is required.

12. Claim 1 recites on lines 4-7 of claim which states " a processor coupled to the memory, operable to execute the instructions, and based at least in part on the execution of the instructions operable to perform operations comprising executing a network management module that causes the processor to launch migratory recovery modules into the network to monitor status of each of the network nodes" then again lines 15-16 states "wherein in the executing the network management module causes the processor to launch the recovery modules in order to determine the status of each of the network nodes". There is insufficient antecedent basis for this limitation in the claim hence making the claim language indefinite. Appropriate correction is required.

13. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Lines 3-4 of the claim states "wherein each of the recovery modules is configured to migrate from one recipient one of the network nodes to

another." The claim language is indefinite and needs to be amended to correctly convey the indented limitation.

14. Claim 22 recites the limitation "The computer readable medium of claim 21" in line 1. However neither upward successive claims 21 nor claim 1 mention any "computer readable medium". There is insufficient antecedent basis for this limitation in the claim.

15. Claims 2-4, 6-9, 21-25, 27 & 28 are also rejected under 35 U.S.C. 112, second paragraph by virtue of their dependence on clam 1.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

17. Claims 1-4, 6-9, 11-14, 16-25, 27 & 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Turek et al (U.S.6,460,070).

18. As per claims 1 Turek disclosed a method for managing a plurality of distributed nodes of a network (Abstract), comprising: a memory storing computer readable instructions (col.10, lines 29-43); and a processor coupled to the memory, operable to execute the instructions, and based at least in part on the execution of the instructions operable to perform operations (col.9, lines 66-67 & col.10, lines 1-2) comprising executing a network management module {dispatch mechanism} that causes the processor to launch migratory recovery modules into the network to monitor status of each of the network nodes (col.2, lines col.8, lines 18-33); wherein each of the recovery modules is configured to: cause any given one of the network nodes to migrate the network node from the given network node to another one of the network nodes (col.8,lines 18-33); cause any given one of the network nodes to determine a respective status of the given network node; and cause any given one of the network nodes to initiate a recovery process on the given network node in response to a determination that the given network node has one or more failed node processes (col.8, lines 18-33 & col.4, lines 42-49); wherein in the executing the network management module causes the processor to launch the recovery modules in order to determine the status of each of the network nodes (col.8, lines 19-33); and wherein in the executing the network management module causes the processor to monitor transmissions that are received from the recovery modules executing on respective ones of the network nodes in order to provide periodic monitoring of the status of the network nodes (col.2, lines 22-26 & col.8, lines 39-52).

19. As per claims 11, 19 & 20 Turek disclosed a method for managing a plurality of distributed nodes of a network, comprising: (a) on a current one of the network nodes, determining a status of the current network node (col.2, lines col.8, lines 18-33); (b) in response to a determination that the current network node has one or more failed node processes, initiating a recovery process on the current network node (col.7, lines 58-67 & col.8, lines 1-9); (c) after initiating the recovery process, migrating from the current network node to a successive one of the network nodes (col.5, lines 32-60, col.7, lines 58-67 & col.8, lines 19-33); and repeating (a) ,(b), and (c) (col.2, lines 61-62) with the current network node corresponding to the successive network node for each of the nodes in the network {addressed in prior art excepts of a, b, & c above}.

20. As per claims 2, 12, 21, 23, 24 & 25 Turek disclosed the system of claim 1, wherein at least one of the recovery module comprises a respective routing component this is executable by a given one of the network nodes (Turek, col.5, lines 32-60) to cause the given network node determine next hop addresses for migrating the recovery module from the given to a successive destination network nodes col.7, lines 58-67 & col.8, lines 19-33).

21. As per claims 3 & 13 Turek disclosed the system of claim 2, wherein the routing component is executable by the given network node to cause the given network node

to determine the next hop address based upon a routing table stored at the origin network node (Turek, col.5, lines 32-60)

22. As per claims 4 & 14 Turek disclosed the system of claim 1, wherein at least one of the recovery module is executable by the given network node to cause the given network node to determine the status of the given network node by sending an inter-process communication to a node process executing on the given network node (Turek, col.3, lines 65-67, col.4, lines 1-12 & col.5, lines 32-60).

23. As per claims 6 & 16 Turek disclosed the system of claim 1, wherein each of the recovery module is executable by the given network node to cause the given network node to perform operations comprising: determining whether the given network node has one or more failed processes, initiating a recovery process on the given network node in accordance with a restart protocol (Turek, col.6, lines 23-59).

24. As per claims 7 & 17 Turek disclosed the system of claim 6, wherein each of the recovery module is executable by the given network node to cause the given network node to respond to a determination that the given network node has a failed process by initiating a restart of the failed process by transmitting a request to a process execution service operating on the given network node (Turek, col.6, lines 23-59).

25. As per claims 8 & 18 Turek disclosed the system of claim 1, wherein each of the recovery module is executable by the given network node to cause the given network node to transmit a respective node status message to the network management module (Turek, col.2, lines 22-62).

26. As per claim 9 Turek disclosed the system of claim 8, wherein each of the node status messages comprises information obtained from a respective log file generated at a respective failed one of the network node (Turek, col.8, lines 58-67 & col.8, lines 1-9).

27. As per claim 22 Turek disclosed the computer-readable medium of claim 21, wherein the operating environment on each of the network nodes provides each of the recovery modules with access to status monitoring resources, recovery resources, and native operative system resources that are available at each of the network nodes (Turek, col.8, lines 39-52).

28. As per claim 27 Turek disclosed the system of claim 1, wherein the network management module causes the processor to determine a number of the recovery module needed to achieve a specified network monitoring service level, and to launch the determined number of recovery modules into the network to achieve the specified network monitoring service level (col.2, lines 36-46).

29. As per claim 30 Turek disclosed the system of claim 1, wherein, in the execution, the network management module causes the processor to monitor number of network node failures reported by the recovery modules and causes the processor to launch more of the migratory modules into the network as the number of reported failures increases (Turek, col.5, lines 32-67).

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31. Claims 5, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turek (U.S. 6,460,070) and Sreenivasan (U.S. Pub No. 2002/0049845 A1).

32. As per claims 5 Turek disclosed a system for managing a plurality of distributed nodes of a network, comprising: first and second ones of the network nodes; wherein the first network node is operable to execute a recovery modules that causes the first network node to migrate the recovery module from the first network node to the second network node (col.5, lines 32-42 & col.8, lines 18-33), and in response to receipt of the recovery module from the first network node, the recovery module causes the second

network node to determine a status of the second network node (col.7, lines 58-67 & col.8, lines 1-9) in accordance with a heartbeat messaging protocol, and in response to a response to a determination that the second network node has one or more failed processes, the recovery module causes the second network node to initiate a recovery process on the second network node (col.1, lines 65-67 & col.2, lines 1-46). Although Turek disclosed software agent (module) providing network status information to the management module. However Turek did not specifically mentioned agent using a "heartbeat messaging protocol" to determine the status of a network node. In the same field of endeavor Sreenivasan disclosed daemon (module or software agent) sending "I am alive message" (heartbeat messaging protocol) to determine the status of a network node (paragraphs.78, 111 & 112).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated the functionality of daemon (module or software agent) sending "I am alive message" (heartbeat messaging protocol) to determine the status of a network node as disclosed by Sreenivasan in the a system for managing a plurality of distributed nodes of a network as disclosed by Turek in order to make the managing system more reliable and responsive resulting in determining accurate diagnosis and status of the network nodes.

33. As per claim 15 Turek disclosed the method of claim 11. Although Turek disclosed agents (modules) providing status information about the network nodes. However Turek did not explicitly disclose wherein the status of the network node is

determined in accordance with a heartbeat messaging protocol. In the same field of endeavor Sreenivasan disclosed daemon (module or software agent) sending “I am alive message” (heartbeat messaging protocol) to determine the status of a network node (paragraphs.78, 111 & 112).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated the functionality of daemon (module or software agent) sending “I am alive message” (heartbeat messaging protocol) to determine the status of a network node as disclosed by Sreenivasan in the a system for managing a plurality of distributed nodes of a network as disclosed by Turek in order to make the managing system more reliable and responsive resulting in determining accurate diagnosis and status of the network nodes.

Allowable Subject Matter

34. Claims 28 & 29 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

35. Claim 28 is objected to as allowable subject matter which states "The system of claim 1, wherein the network management module causes the processor to statistically identify target ones of the network nodes that are needed to achieve a specified confidence level of network monitoring reliability, and the network management module

causes the processor to launch the recovery modules into the network by transmitting respective ones of the recovery modules to the identified target network nodes."

36. Claim 29 is objected to as allowable subject matter which states "The method of claim 11, further comprising on a respective one of the network nodes: determining a number of the recovery modules needed to achieve a specified network monitoring service level; statistically identifying target ones of the network nodes to achieve a specified confidence level of network monitoring reliability; and transmitting the determined number of the recovery modules to the identified target network nodes."

Conclusion

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASGHAR BILGRAMI whose telephone number is (571)272-3907. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia L.M. Dollinger can be reached on 571-272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. B./
Examiner, Art Unit 2443

/Tonia LM Dollinger/
Supervisory Patent Examiner, Art Unit 2443